Clutch Piston Travel Specifications

Clutch Travel Specifications

Component	Product	Number Of Clutches	Specification	
			Metric	English
Reverse Clutch (404)	5L40-E	6	0.98-1.43 mm	0.039-0.056 in
Direct Clutch (406)	5L40-E	8	1.41-1.86 mm	0.056-0.073 in
Low and Reverse Clutch (517)	5L40-E	10	1.72-2.17 mm	0.068-0.085 in
2nd Clutch (520)	5L40-E	10	1.47-1.92 mm	0.056-0.076 in
2nd Coast Clutch (528)	5L40-E	4	0.94-1.39 mm	0.037-0.055 in
Intermediate Clutch (495)	5L40-E	6	1.13-1.58 mm	0.044-0.062 in
Overdrive Clutch (487)	5L40-E	6	1.60-2.05 mm	0.063-0.081 in
Forward Clutch (436)	5L40-E	6	1.20-1.65 mm	0.047-0.065 in
Coast Clutch (438)	5L40-E	6	1.17-1.67 mm	0.046-0.066 in

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Clutch	Number of Clutch Plates
	5L40-E
Reverse Clutch (404)	6
Direct Clutch (406)	10
Low and Reverse Clutch (517)	10
2nd Clutch (520)	10
2nd Coast Clutch (528)	6
Intermediate Clutch (495)	8
Overdrive Clutch (487)	6
Forward Clutch (436)	8
Coast Clutch (438)	6

Clutch Plate Selection Specifications

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Component Resistance

Component	Circuit Number	Wire Color*	Inline Connector Pin	Resistance at 20°C (68°F)	Resistance at 70°C (158°F)	Resistance to Ground - Transmission Case
1-2 Shift Solenoid Valve	1525	WH	17	15.0-17.0 ohms	17.9-20.3 ohms	Greater than 50Kohms
	1222	BK	14			
2-3 Shift Solenoid Valve	1525	WH	17	15.0-17.0 ohms	17.9-20.3 ohms	Greater than 50Kohms
	1223	BU	9			
4-5 Shift Solenoid Valve	1525	WH	17	15.0-17.0 ohms	17.9-20.3 ohms	Greater than 50Kohms
	898	GY	5			
Pressure Control Solenoid Valve	1228	GN	13	3.5-4.6 ohms	4.2-5.5 ohms	Greater than 50Kohms
	1229	WH	8			
TCC PWM Solenoid Valve	1525	WH	17	10.0-11.5 ohms	11.8-13.6 ohms	Greater than 50Kohms
	418	YE	20			
Input Speed Sensor	1230	YE	18	325-485 ohms	385-575 ohms	Greater than 50Kohms
	1231	WH	15			
Output Speed Sensor	400	OG	1	325-485 ohms	385-575 ohms	Greater than 50Kohms
	401	WH	3			
TFT Sensor	1227	RD	10	Refer to Transmission Fluid Temperature Sensor Specifications .		
	2762	WH	6			
* All wire colors are internal to the transmission.						

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End Play Specifications

Output Shaft End Play Chart - 5L40-E

Dimention B	Washer Thickness (mm)	Washer Thickness (in)
15.99 mm -16.27 mm (0.629 in - 0.640 in)	0.95-1.05	0.037-0.041
16.27 mm -16.47 mm (0.640 in - 0.648 in)	1.15-1.25	0.045-0.049
16.47 mm -16.67 mm (0.648 in - 0.656 in)	1.35-1.45	0.053-0.057
16.67 mm -16.87 mm (0.656 in - 0.664 in)	1.55-1.65	0.061-0.065
16.87 mm -17.07 mm (0.664 in - 0.672 in)	1.75-1.85	0.068-0.073
17.07 mm -17.27 mm (0.672 in - 0.680 in)	1.95-2.05	0.076-0.081
17.27 mm -17.47 mm 0.680 in - 0.688 in)	2.15-2.25	0.084-0.089
17.47 mm -17.67 mm (0.688 in - 0.696 in)	2.35-2.45	0.093-0.096
17.67 mm -17.87 mm (0.696 in - 0.704 in)	2.55-2.65	0.100-0.104
17.87 mm -18.07 mm (0.703 in - 0.711 in)	2.75-2.85	0.108-0.112

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Fastener Tightening Specifications (On Vehicle)

Fastener Tightening Specifications (On Vehicle)

Application	Specification	
	Metric	English
Case Extension Housing Retaining Bolt	22 N·m	16 lb. ft
Control Valve Body Assembly Retaining Bolt	11 N·m	97 lb. in
Detent Spring Retaining Bolt	11 N·m	97 lb. in
Drive Flange Retaining Nut	60 N·m	44 lb. ft
Fluid Cooler Pipe Brace Retaining Bolt	50 N·m	37 lb. ft
Fluid Cooler Pipe Retaining Bolt	25 N·m	18 lb. ft
Fluid Drain Retaining Plug	20 N·m	15 lb. ft
Fluid Fill Retaining Plug	20 N·m	15 lb. ft
Fluid Pan Retaining Bolt	11 N·m	97 lb. in
Input Speed Sensor Retaining Bolt	11 N·m	97 lb. in
Manual Shift Shaft Retaining Nut	9 N·m	80 lb. in
Oil Pressure Test Retaining Plug	11 N·m	97 lb. in
Output Speed Sensor Retaining Bolt	11 N·m	97 lb. in
Shift Control Assembly to Tunnel Reinforcement Retaining Nut	12 N·m	106 lb. in
Shift Control Linkage Adjustment Retaining Nut	9 N·m	80 lb. in
Torque Converter Retaining Bolt	63 N·m	46 lb. ft
Torque Converter Seal Retaining Bolt	3.6 N·m	31.9 lb. in
Transmission Mounting Retaining Bolt M10x1.5	50 N·m	37 lb. ft
Transmission Mounting Retaining Bolt M12x1.75	75 N·m	55 lb. ft
Front Sub Frame Bolts	160 N·m	118 lb. ft
Transmission Support to Underbody Retaining Bolt	63 N·m	46 lb. ft

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Fastener Tightening Specifications (Unit Repair)

Fastener Tightening Specifications

Description of Usage	Ref No.*	Qty	Specification	
			Metric	English
Accumulator Housing to Valve Body	318	12	11 N·m	97 lb. in
Channel Plate to Valve Body	300	7	11 N·m	97 lb. in
Converter Housing to Case	2	7	22 N·m	16 lb. ft
Drain Plug to Fluid Pan	63	1	20 N·m	15 lb. ft
Extension Housing to Case	35	7	22 N·m	16 lb. ft
Fluid Pan to Case	65	20	11 N·m	97 lb. in
Front Control Valve Body to Top Channel Plate	50	2	11 N·m	97 lb. in
Input Speed Sensor to Case	45	1	11 N·m	97 lb. in
Output Speed Sensor to Case	43	1	11 N·m	97 lb. in
Parking Pawl Actuator Bracket to Case	609	2	22 N·m	16 lb. ft
Prop Shaft Flange to Output Shaft	34	1	57 N·m	42 lb. ft
Torque Converter Housing Seal Bolt	228	2	3.6 N·m	31.86 lb. in
Transmission Fluid Pump Cover to Torque Converter Housing	240	6	11 N·m	97 lb. in
Transmission Fluid Pump Cover to Torque Converter Housing	241	5	22 N·m	16 lb. ft
Transmission Level Hole Plug to Case	36	1	20 N·m	15 lb. ft
Transmission Pressure Test Plug to Case	40	1	11 N·m	97 lb. in
Valve Body to Case	49	2	11 N·m	97 lb. in
Valve Body to Case	51	6	11 N·m	97 lb. in
Valve Body to Case	53	1	11 N·m	97 lb. in
Valve Body to Channel Plate	53	1	11 N·m	97 lb. in
* Reference Number refers to the callout number on the disassembled view.				

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Fluid Capacity Specifications

Fluid Capacity Specifications (5L40-E)

Application	Specification	
	Metric	English
Transmission Fluid Capacity -- Complete Overhaul	8.9 liters	9.4 quarts
Pan Removal	6.0 liters	7.4 quarts
Torque Converter (245 mm)	2.9 liters	3.1 quarts
Torque Converter (258 mm)	3.1 liters	3.3 quarts
Measurements are approximate.		

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Dimension M	Retainer Ring Thickness (mm)	Retainer Ring Thickness (in)
0.85 mm -0.95 mm (0.033 in - 0.037 in)	3.80-3.90	0.149-0.153
0.95 mm -1.05 mm (0.037 in - 0.041 in)	3.70-3.80	0.145-0.149
1.05 mm -1.15 mm (0.041 in - 0.045 in)	3.60-3.70	0.141-0.145
1.15 mm -1.25 mm (0.045 in - 0.049 in)	3.50-3.60	0.137-0.141

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Intermediate and Overdrive Clutch Housing Retaining Ring Specifications

Intermediate and Overdrive Clutch Housing Retainer Ring Specification

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Line Pressure

Line Pressure

Pressure Control Solenoid Valve Amperage	English	Metric
0.1	173-197 psi	1 194-1 355 kPa
0.3	162-188 psi	1 118-1 296 kPa
0.5	145-169 psi	1 002-1 166 kPa
0.7	117-140 psi	804-966 kPa
0.8	95-119 psi	654-819 kPa
0.9	63-89 psi	453-611 kPa
1.1	42-64 psi	288-440 kPa
Engine at 1,300 RPM		

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Range	D432								N	R	P
Gear	1	1	2	2	3	3	4	5	--	R	--
Engine Braking	*No	Yes	*No	Yes	*No	Yes	Yes	Yes	--	Yes	--
Direct Clutch	--	--	--	--	--	--	A	A	--	--	--
Coast Clutch	A	A	A	A	A	A	A	--	--	--	--
Reverse Clutch	--	--	--	--	--	--	--	--	--	A	--
Forward Clutch	A	A	A	A	A	A	A	A	--	--	--
Forward Clutch Sprag	LD	LD	LD	LD	LD	LD	LD	--	--	--	--
Over-Drive Clutch	--	--	--	--	--	A	--	A	--	--	--
Intermediate Clutch Sprag	--	--	--	--	LD	LD	--	--	--	--	--
Intermediate Clutch	--	--	--	--	A	A	A	A	--	--	--
Low Clutch Sprag	LD	LD	--	--	--	--	--	--	--	--	--
Low and Reverse Clutch	--	A	--	--	--	--	--	--	--	A	--
Second Clutch	--	--	A	A	A	A	A	A	--	--	--
Second Clutch Sprag	--	--	LD	LD	--	--	--	--	--	--	--
Second Coast Clutch	--	--	--	A	--	--	--	--	--	--	--

- A = Applied
- LD = Locked in Drive

* Engine Braking is electronically controlled by the TCM, and is available as calibrated for each model and application.

Range Reference

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Reverse Clutch Housing Selective Thrust Washer Specifications

Reverse Clutch Housing Thrust Washer Chart

Dimension X	Washer Thickness (mm)	Washer Thickness (in)
50.18 mm -50.36 mm (1.975 in - 1.982 in)	2.53-2.68	0.099-0.105
50.36 mm -50.54 mm (1.982 in - 1.989 in)	2.71-2.86	0.106-0.112
50.54 mm -50.72 mm (1.989 in - 1.996 in)	2.89-3.04	0.113-0.119
50.72 mm -50.90 mm (1.996 in - 2.003 in)	3.05-3.20	0.120-0.125
50.90 mm -51.08 mm (2.003 in - 2.011 in)	3.25-3.40	0.127-0.133
51.08 mm -51.26 mm (2.011 in - 2.018 in)	3.43-3.58	0.135-0.140
51.26 mm -51.44 mm (2.018 in - 2.025 in)	3.61-3.76	0.142-0.148
51.44 mm -51.62 mm (2.025 in - 2.032 in)	3.79-3.94	0.149-0.155

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Gear Range	1-2/3-4 Shift Solenoid	2-3 Shift Solenoid	4-5 Shift Solenoid	Gear Ratio
Park, Reverse, Neutral	OFF	ON	OFF	3.03:1
First	OFF	ON	OFF	3.42:1
Second	ON	ON	OFF	2.21:1
Third	ON	OFF	OFF	1.60:1
Fourth	OFF	OFF	ON	1.00:1
Fifth	OFF	OFF	OFF	0.75:1

All shift solenoids are normally-closed.

The 4-5 shift solenoid also enables engine braking.

Shift Solenoid Valve State and Gear Ratio

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All shift solenoids are normally-closed.

The 4-5 shift solenoid also enables engine braking.

	TPS %	Output Speed (MPH)	Output Speed (KPH)
		3.6L LY7	3.6L LY7
1-2 Shift	12	8	13
	25	10	16
	50	17	27
2-3 Shift	12	16	26
	25	19	31
	50	30	48
3-4 Shift	12	28	45
	25	30	48
	50	49	79
4-5 Shift	12	41	66
	25	50	80
	50	106	171
2-1 Shift	12	5	8
	25	5	8
	50	5	8
3-2 Shift	12	13	21
	25	13	21
	50	13	21
4-3 Shift	12	23	37
	25	23	37
	50	23	37
5-4 Shift	12	31	50
	25	31	50
	50	40	64
3rd Gear TCC Apply	12	24	39
	25	45	72
4th Gear TCC Apply	12	26	42
	25	30	48
5th Gear TCC Apply	12	31	50
	25	75	121

Shift Speed

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	Output Speed (MPH)	Output Speed (KPH)
	3.6L LY7	3.6L LY7
	8	13
	10	16
	17	27
	16	26
	19	31
	30	48
	28	45
	30	48
	49	79
	41	66
	50	80
	106	171
	5	8
	5	8
	5	8
	13	21
	13	21
	13	21
	23	37
	23	37
	23	37
	31	50
	31	50
	40	64
	24	39
	45	72
	26	42
	30	48
	31	50
25	75	121

Transmission Fluid Pump Specifications

Fluid Pump Specifications

Size Classification	Thickness (mm)	Thickness (in)
Important: • Rotor and slide must be chosen from the same size classification as the oil pump body. • Allowable rotor and slide to fluid pump body end play is as follows: **Specification** • Slide to fluid Pump Body End Play -- 0.030-0.051 mm (0.0012-0.0020 in) • Rotor to fluid Pump Body End Play -- 0.030-0.051 mm (0.0012-0.0020 in) The fluid pump assembly has a selective rotor and slide components. These components are chosen based on pump body dimensions. Fluid pump rotor and slide components are available in five size classifications (1, 2, 3, 4, and 5) with the following tolerances:		
Rotor Selection		
1	17.948-17.961	0.7066-0.7071
2	17.961-17.974	0.7071-0.7076
3	17.974-17.987	0.7076-0.7081
4	17.987-18.000	0.7081-0.7086
5	18.000-18.013	0.7086-0.7091
Slide Selection		
1	17.948-17.961	0.7066-0.7071
2	17.991-17.974	0.7071-0.7076
3	17.974-17.987	0.7076-0.7081
4	17.987-18.000	0.7081-0.7086
5	18.000-18.013	0.7086-0.7091
Fluid Pump Body Depth		
1	17.978-18.012	0.7077-0.7091
2	17.978-18.025	0.7083-0.7096
3	18.004-18.038	0.7088-0.7101
4	18.017-18.051	0.7093-0.7106
5	18.030-18.064	0.7098-0.7111

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Temperature	Temperature	Minimum Resistance	Nominal Resistance	Maximum Resistance
°C	°F	ohms	ohms	ohms
-40°C	-40°F	89500	100000	110500
-30°C	-22°F	46419	51400	56381
-20°C	-4°F	25120	27610	30100
-10°C	14°F	14160	15450	16740
0°C	32°F	8278	8972	9666
10°C	50°F	5005	5391	5777
20°C	68°F	3120	3342	3564
30°C	86°F	2000	2132	2264
40°C	104°F	1317	1397	1477
50°C	122°F	888	938	988
60°C	140°F	613	645	677
70°C	158°F	432	453	474
80°C	176°F	310	324	338
90°C	194°F	228	237	246
100°C	212°F	170	176	182
110°C	230°F	128	132	136
120°C	248°F	98	101	104
130°C	266°F	77	79	81
140°C	284°F	60	62	64
150°C	302°F	48	49	50

Transmission Fluid Temperature Sensor Specifications

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Transmission General Specifications

Name	5L40-E
RPO Codes	M82, MX5
Vehicle Platform (Engine/Transmission) Usage	D, E, Y
Tranmission Drive	Rear Wheel Drive
1st Gear Ratio	3.42:1
2nd Gear Ratio	2.21:1
3rd Gear Ratio	1.60:1
4th Gear Ratio	1.00:1
5th Gear Ratio	0.75:1
Reverse Ratio	3.03:1
Torque Converter Size (Diameter of Torque Converter Turbine)	245 mm / 258 mm
Pressure Taps	Line Pressure
Transmission Fluid Type	Dexron™ VI
Transmission Fluid Capacity (Approximate)	Bottom Pan Removal Complete Overhaul: Dry 8.5 L (9.0 qt)
Transmission Type: 5	Five Forward Gears
Transmission Type: L	Longitude Mount
Transmission Type: 40	Product Series
Transmission Type: E	Electronic Controls
Position Quadrant	P, R, N, D
Case Material	Die Cast Aluminium
Transmission Weight Dry	(161.0 lb.) 73 kg
Transmission Net Weight	(177.0 lb.) 80.5 kg
Maximum Trailer Towing Capacity	Domestic: 2100 kg Export: 2100 kg
Maximum Gross Vehicle Weight	3,500 kg (7,716 lbs)

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Transmission Internal Mode Switch Logic

Transmission Internal Mode Switch Logic

Gear Selector Position	A	B	C	P
Park	LOW	HI	HI	LOW
Park/Reverse	LOW	HI	HI	HI
Reverse	LOW	LOW	HI	HI
Reverse/Neutral	HI	LOW	HI	HI
Neutral	HI	LOW	HI	LOW
Neutral/Drive 5	HI	LOW	LOW	LOW
Drive 5	HI	LOW	LOW	HI
Drive 5/Drive 4	LOW	LOW	LOW	HI
Drive 4	LOW	LOW	LOW	LOW
Drive 4/Drive 3	LOW	HI	LOW	LOW
Drive 3	LOW	HI	LOW	HI
Drive 3/Drive 2	HI	HI	LOW	HI
Drive 2	HI	HI	LOW	LOW
Open	HI	HI	HI	HI
Invalid	HI	HI	HI	LOW

- HI = Ignition voltage
- LOW = 0 voltage

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